Claims

1-9.   (cancelled)

10.   (currently amended)   The method of ~~claim 1~~ claim 40, further comprising:

obtaining peak frequencies and associated decay rates from the first and second multi-

dimensional NMR data sets, and

forming the set of mutually exclusive terms with the obtained peak frequencies and associated

decay rates.

11-28.   (cancelled)

29.   (currently amended)   The method of claim ~~24~~ 39 wherein the third multi-dimensional

spectroscopic data set is obtained at lower resolution than the first and second multi-dimensional NMR

spectroscopic data sets.

30-37.   (cancelled)

38.   (currently amended)   A method of obtaining multi-dimensional nuclear magnetic

resonance (NMR) spectroscopic information for a specimen, the method comprising:

obtaining a first multi-dimensional NMR spectroscopic data set and a second multi-

dimensional NMR spectroscopic data set, wherein the first and second multi-dimensional NMR

spectroscopic data sets each have at least a first coordinate and a second coordinate, wherein the first

coordinate of the first multi-dimensional <u>NMR</u> spectroscopic data set and the first coordinate of the

second multi-dimensional <u>NMR</u> spectroscopic data set are common coordinates, and the second

coordinate of the first multi-dimensional <u>NMR</u> spectroscopic data set and the second coordinate of the

multi-dimensional <u>NMR</u> spectroscopic second data set are not common coordinates;

identifying a set of two or more mutually exclusive terms based on the first multi-dimensional

<u>NMR</u> spectroscopic data set and the second multi-dimensional <u>NMR</u> spectroscopic data set, wherein

the mutually exclusive terms are associated with combinations of coordinate values of the second

coordinates of the first and second multi-dimensional <u>NMR</u> spectroscopic data sets associated with at

least one common coordinate value of the common coordinate;

forming a model of multi-dimensional <u>NMR</u> spectroscopic information, the model having a

predetermined dimension greater than that of the first multi-dimensional <u>NMR</u> spectroscopic data set

and the second multi-dimensional <u>NMR</u> spectroscopic data set, wherein the model includes the set of

two or more mutually exclusive terms;

obtaining a third multidimensional <u>NMR</u> spectroscopic data set having the predetermined

dimension;

fitting the model to the third multi-dimensional <u>NMR</u> spectroscopic data set; ~~and~~

selecting only one of the set of mutually exclusive terms to represent the multi-dimensional

<u>NMR</u> spectroscopic data based on the fitting<u>; and</u>

<u>storing the selected set of mutually exclusive terms.</u>

39.   (currently amended)   The method of ~~claim 1~~ <u>claim 38</u>, further comprising ~~providing~~

<u>obtaining</u> the ~~at least~~ first and second multi-dimensional <u>NMR</u> spectroscopic data sets and ~~a~~ <u>the</u> third

multi-dimensional <u>NMR</u> spectroscopic data set <u>by NMR measurements of the specimen</u>~~, wherein the~~

~~first, second, and third multi-dimensional data sets are measured NMR data sets.~~

40. (new) The method of claim 38, further comprising displaying the model multi-dimensional

NMR spectroscopic information based on the selected set of exclusive terms on a monitor.